Assessing Delaware's Vulnerability to Sea Level Rise

Vulnerability to Sea Level Rise

"Potential for loss or harm to exposed assets due to complex interactions among natural processes, land use decisions and community resilience"

NOAA (2010). Adapting to climate change: a planning guide for coastal managers

Vulnerability = Exposure (Inundation) and Adaptive Capacity

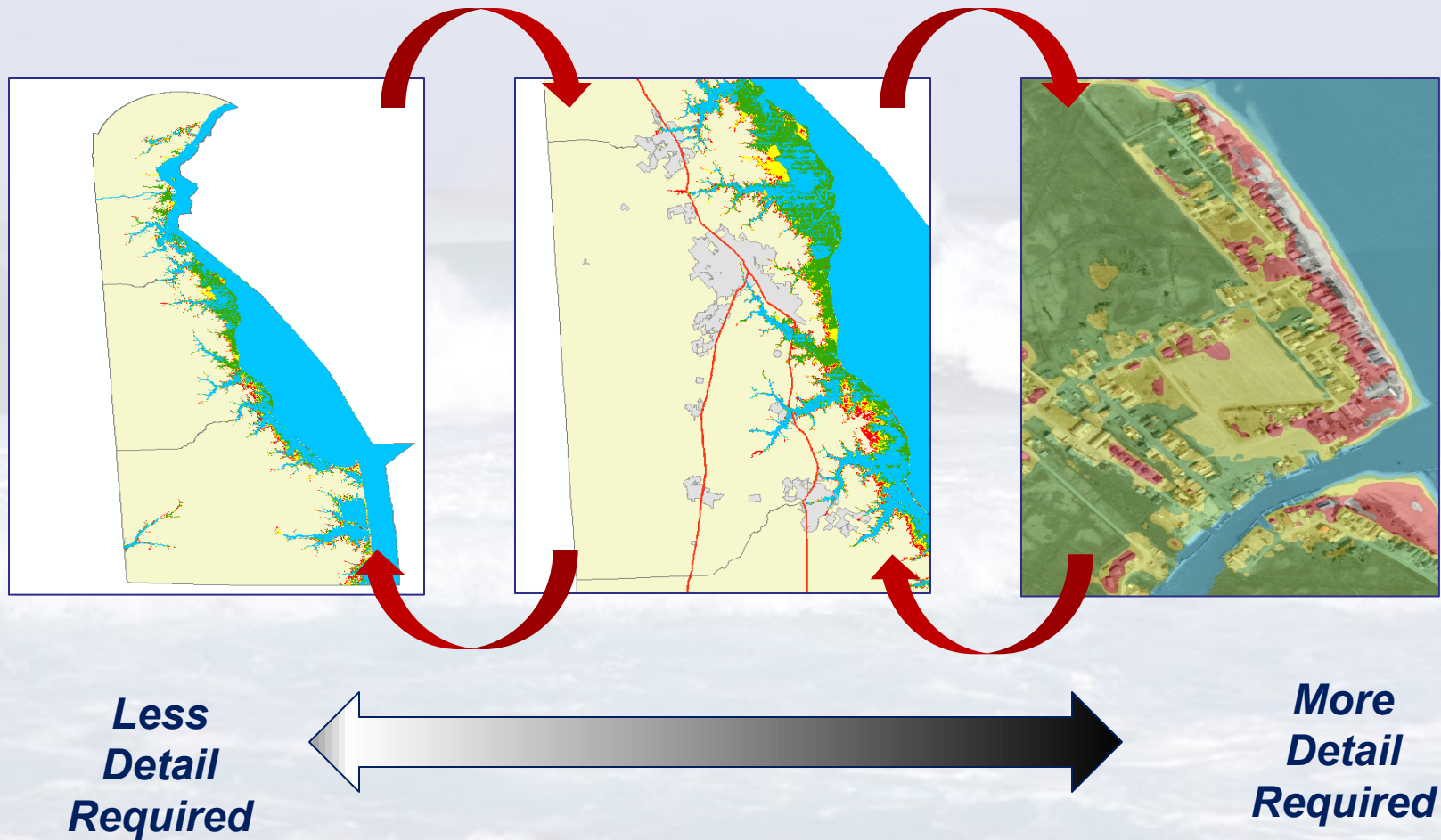**Includes built environment and social aspects.**

Vulnerability to Sea Level Rise

" Generally speaking, vulnerability … means the potential of loss." *Cutter, et. al. (2003).*

- Varies geographically

- Varies over time

- Varies among social groups

- Well understood for built environment, less understood for social vulnerability (due to difficulty of defining them).

- Detail needed depends on geographic scale & issue.

- Much of the social vulnerability is defined community by community. (risk tolerance, etc.)

Scale of Vulnerability Assessment may affect data use and need.

Less Detail Required ← → **More Detail Required**

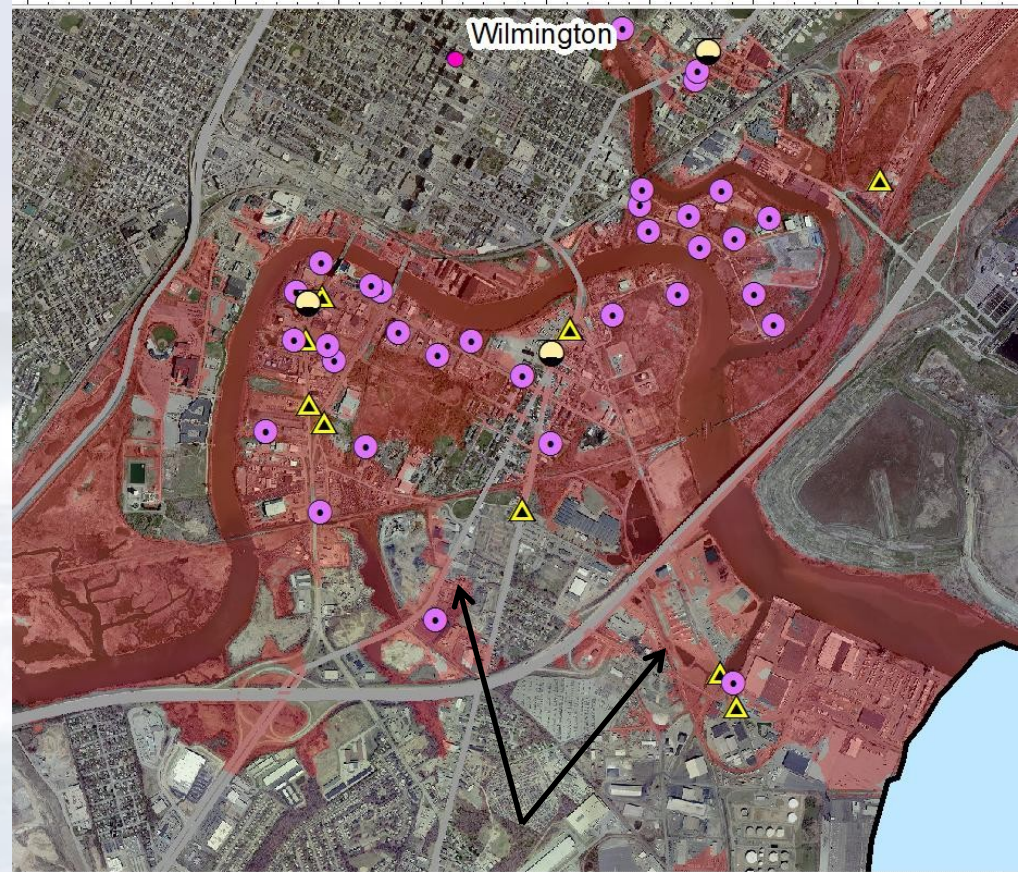# Screening Level Assessment (Target set at Feb. 2011 mtg.)

- SLRAC will be conducting a statewide screening assessment to use as baseline for developing adaptation strategies

- Information developed will be at a statewide scale

- Statewide assessment will indicate areas that require more study or assessment
  - ✓ Will be done in later phases or during implementation

Step 1 – Determine Exposure (Completed)

- Asks the question – "Is X within an inundated area"

- Requires:
  - ✓ Inundation maps
  - ✓ Location of assets/resources/infrastructure of concern
  - ✓ QA/QC by subject matter experts

- Provides basic info regarding how much, what kind and where

Potential Exposure of Hazardous Sites at 1.5 meters of Sea Level Rise

Delaware's Sea Level Rise Initiative

Step 2 – Determine Adaptive Capacity
(Some complete, but gaps exist)

- Subjective exercise
- Asks, if X is inundated, what are the potential:
  - ✓ Economic Impacts
  - ✓ Social Impacts
  - ✓ Environmental Impact
- Asks what programs, funding and people are involved in managing X (not complete)
- Asks what regulations and policies exist for managing X (not completed)

Put it all together…

- Describes and maps resources that are exposed to SLR

- Describe how data can be used, and where additional detail may be needed for more local scale.

- Provides information necessary to begin identifying strategies

- Describes ability to manage, preserve or protect exposed resources (Do as part of Strategy Development in next phase/step).

Workgroup Products

Natural Resources

Contents:
- Water Resources
- Beaches and Dunes
- Upland Forest
- Flora & Fauna
- Conservation Lands
- Agricultural

Sections:
- Exposure
- Users & Uses
- Fiscal Capacity
- Regs & Policies
- Economic Impact
- Social Impact
- Environmental Impact
- Add'l Info

Society & Economy

Contents
- Commercial
- Industrial
- Residential
- Future Development
- Agriculture
- Vulnerable Populations
- Community Assets
- Tourism and Recreation
- Historic and Cultural

Sections
- Exposure
- Users and Uses
- Fiscal Capacity
- Regulations and Policies
- Economic Impact
- Social Impact
- Environmental Impact
- Add'l info

Public Safety & Infrastructure

Contents

- Public Safety
  - Police, Fire, Ambulance, Dams, Tidegates...
- Transportation
  - Airports, DART, Roads and bridges, Port, Boat Ramps...
- Utilities
  - Wastewater, Wells, Underground utilities, cell towers, telephone...
- Services
  - Adult care, hospitals, schools, government buildings...
- Industrial
  - Brownfields, Landfills, Hazardous Waste, storage tanks...

Sections

- Exposure
- Impact based on Inundation Level
- Add'l Criteria needed to assess impact
- Social Impacts
- Economic Impacts
- Environmental Impacts

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